I claim:

1. A method for distributing TCP packets in a network with use of a gateway, the gateway comprising one or more input ports, one or more output ports, and a plurality of queues, at least one of said plurality of queues having been designated as a SYN queue, the method comprising:

receiving a TCP packet from one of said input ports;

determining whether the TCP packet is a SYN packet;

inserting the TCP packet into one of said SYN queues if it is a SYN packet;

inserting the TCP packet into one of said plurality of queues which is not one of said SYN queues if it is not a SYN packet; and

scheduling the TCP packet for transmission via one of said output ports based on a fair scheduling algorithm.

2. The method of claim 1 wherein the fair scheduling algorithm comprises a round robin scheduling algorithm.

3. The method of claim 1 wherein said plurality of queues which are not one of said SYN queues comprise per-flow queues, each per-flow queue for storing TCP packets associated with a separate TCP connection flow.

4. The method of claim 1 wherein each of said plurality of queues which are not one of said SYN queues have queue lengths associated therewith, and wherein said step of inserting the TCP packet into one of said plurality of queues which is not one of said SYN queues comprises maintaining said plurality of queues which are not one of said SYN queues as a chain of sublists of queues sorted according to said queue lengths associated therewith.

5. The method of claim 1 wherein each of said plurality of queues which are not one of said SYN queues have queue lengths associated therewith, and wherein said step of transmitting a plurality of packets from said plurality of queues to said one or more output ports comprises removing each of said transmitted packets from

said plurality of queues and maintaining said plurality of queues which are not one of said SYN queues as a chain of sublists of queues sorted according to said queue lengths associated therewith.

6. The method of claim 1 further comprising the step of removing a previously inserted SYN packet from one of said SYN queues if said TCP packet is a SYN packet and said SYN queues are full.

7. The method of claim 6 wherein said previously inserted SYN packet removed from said one of said SYN queues is chosen at random.

8. The method of claim 1 further comprising the step of removing a previously inserted TCP packet which is not a SYN packet from one of said plurality of queues which is not one of said SYN queues if said TCP packet is not a SYN packet and said plurality of queues which are not SYN queues are full.

9. The method of claim 8 wherein said previously inserted TCP packet is removed from a largest one of said plurality of queues which is not one of said SYN queues.

10. The method of claim 1 wherein the SYN queues have a capacity associated therewith, said capacity providing for a maximum number of permitted incomplete connections, wherein the plurality of queues which are not SYN queues have a number of established connections associated therewith, and wherein said maximum number of permitted incomplete connections is mathematically proportional to the number of established connections.

11. A network gateway for distributing TCP packets in a network, the gateway comprising one or more input ports, one or more output ports, and a plurality of queues, at least one of said plurality of queues having been designated as a SYN queue, the gateway further comprising a processor adapted to:

receive a TCP packet from one of said input ports;

determine whether the TCP packet is a SYN packet;

insert the TCP packet into one of said SYN queues if it is a SYN packet;

insert the TCP packet into one of said plurality of queues which is not one of said SYN queues if it is not a SYN packet; and

schedule the TCP packet for transmission via one of said output ports based on a fair scheduling algorithm.

12. The gateway of claim 11 wherein the fair scheduling algorithm comprises a round robin scheduling algorithm.

13. The gateway of claim 11 wherein said plurality of queues which are not one of said SYN queues comprise per-flow queues, each per-flow queue for storing TCP packets associated with a separate TCP connection flow.

14. The gateway of claim 11 wherein each of said plurality of queues which are not one of said SYN queues have queue lengths associated therewith, and wherein said inserting of the TCP packet into one of said plurality of queues which is not one of said SYN queues comprises maintaining said plurality of queues which are not one of said SYN queues as a chain of sublists of queues sorted according to said queue lengths associated therewith.

15. The gateway of claim 11 wherein each of said plurality of queues which are not one of said SYN queues have queue lengths associated therewith, and wherein said transmitting of a plurality of packets from said plurality of queues to said one or more output ports comprises removing each of said transmitted packets from said plurality of queues and maintaining said plurality of queues which are not one of said SYN queues as a chain of sublists of queues sorted according to said queue lengths associated therewith.

16. The gateway of claim 11 wherein the process is further adapted to remove a previously inserted SYN packet from one of said SYN queues if said TCP packet is a SYN packet and said SYN queues are full.

17. The gateway of claim 16 wherein said previously inserted SYN packet removed from said one of said SYN queues is chosen at random.

18. The gateway of claim 11 wherein the processor is further adapted to remove a previously inserted TCP packet which is not a SYN packet from one of said plurality of queues which is not one of said SYN queues if said TCP packet is not a SYN packet and said plurality of queues which are not SYN queues are full.

19. The gateway of claim 18 wherein said previously inserted TCP packet is removed from a largest one of said plurality of queues which is not one of said SYN queues.

20. The gateway of claim 11 wherein the SYN queues have a capacity associated therewith, said capacity providing for a maximum number of permitted incomplete connections, wherein the plurality of queues which are not SYN queues have a number of established connections associated therewith, and wherein said maximum number of permitted incomplete connections is mathematically proportional to the number of established connections.